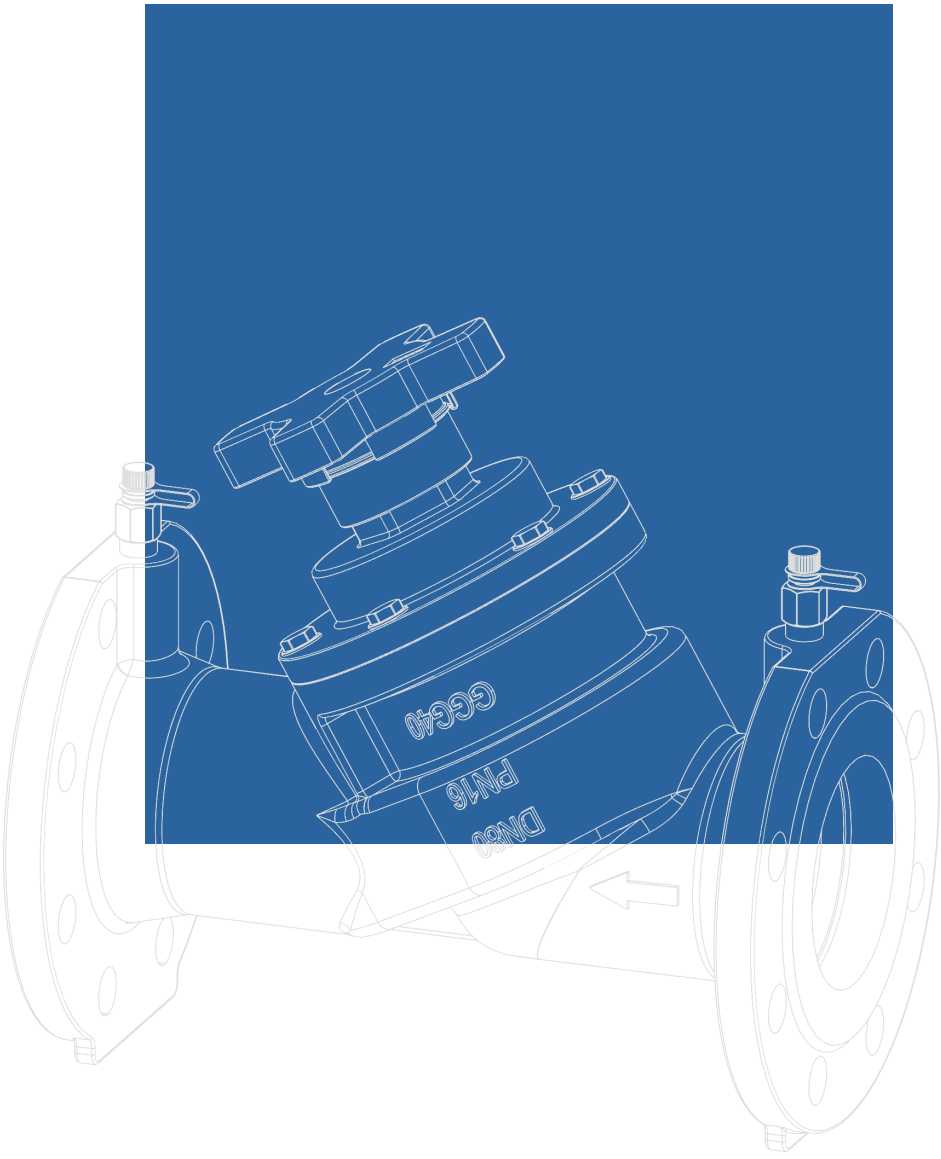
STATIC BALANCING VALVE



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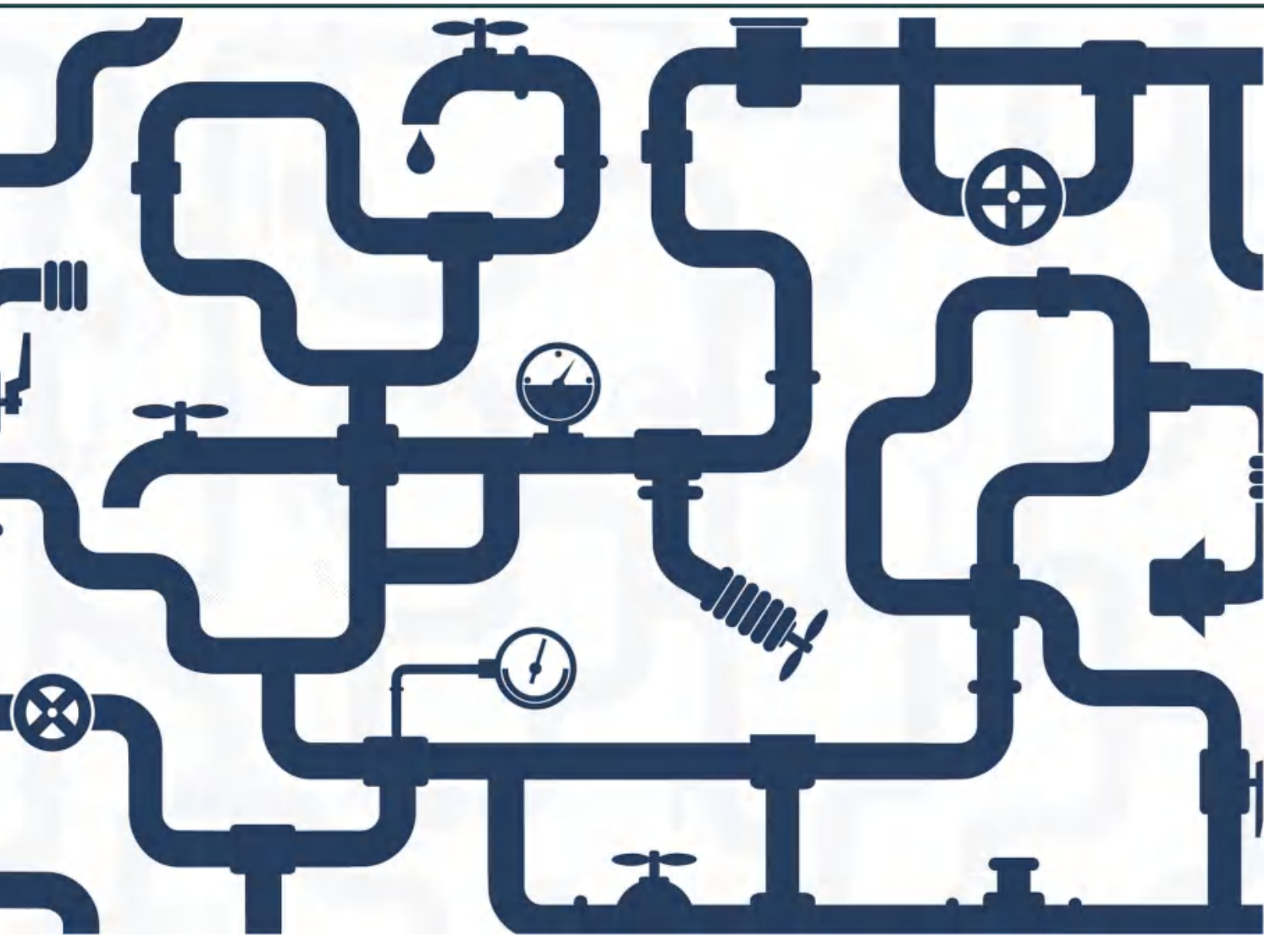


QUALIFICATION

Safe usage

Excellent technology

Cost-effective

Durable

Reliable materials

Export quality

Easy installation

Manufacturer sale

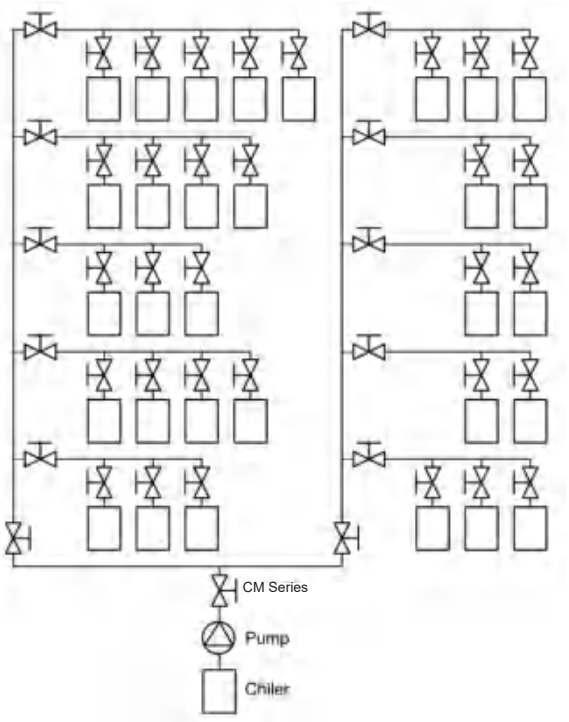








Introduction to the CM Series



System Application

The CM series balancing valve can be widely used in heating and cooling systems, domestic water systems, cooling tower circulation systems, and hydraulic circulation systems such as dehumidification. It balances the resistance by calculating the resistance between the primary main pipeline and each graded pipeline,then adjusts the Kvs value using a differential pressure gauge to distribute the flow rate. It is used together with a differential pressure control valve to stabilize the pressure difference between the supply and return water, automatically eliminate interference from system pressure changes, and maintain the pressure difference between the static balancing valve and the differential pressure control valve within a stable value.To ensure that the downstream valve of the return water does not experience over flow or water shortage to achieve optimal working conditions.

Cooling installation (flow) with manual presetting valves. In order to balance the cooling installation manual presetting valves should be mounted on each terminal unit, branch and riser(LENO™ MSV-BD).

Functions

The static flow balancing valve is suitable for achieving hydraulic balance between various loops in the circulating system, and accurately adjust the flow rate of each branch or terminal.

The CM series balancing valve also has an on/off function, with a reliable opening locking memory device to restore the system to its original setting state after maintenance and repair, ensuring that the circulating system can operate correctly according to the initial design conditions, providing the most reasonable cold and hot values, and minimizing energy consumption.

Working Principle

The flow balancing valve is used to regulate the media flow passing through its valve body. By rotating the control valve handle, the balancing valve stem moves up and down to adjust the flow path and change the flow curve characteristics. The pressure testing points equipped on the balancing valve body are used to measure the pressure difference, then the flow can be detected and adjusted based on the pressure difference.

Technical Parameters

- Design standard:GB/T 28636-2012，BS7350;
- Face to face: GB/T 12221 series 1, EN558-1 series 1;
- Connection flange:GB/T 17241.6 ,ISO7005;
- Thread connection standard in accordance with EN10226;
- Pressure rating:PN10/PN16/PN25(Within DN400)
- Working temperature:-10~120 °C;
- Confirm to PED and valve special equipment manufacturing license;
- Conduct relevant tests according to the requirements of the "Static Balancing Valve Pressure Testing Specification"

Performance Characteristics

- **Digital handwheel and opening lock**

The digital handwheel can precisely display the opening indication, allowing operators to conveniently and accurately adjust the balance height. It can also lock the maximum opening at any position without affecting the free adjustment between 0 and the set maximum opening.

- **Y-shaped structure**

saving installation space.

- **Full shut-off design**

It adopts a balanced valve core design, enabling the handwheel to be easily rotated to close the valve regardless of the pressure level.

- **Ideal flow regulation characteristics**

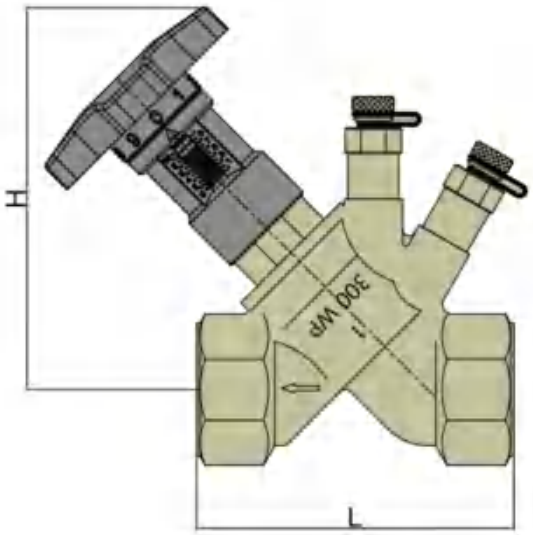
The relative flow and relative opening have a linear relationship, with a control accuracy of less than 10%.

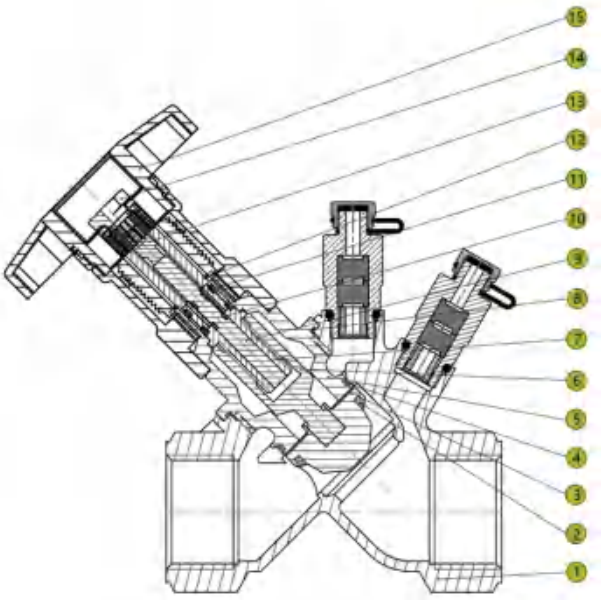
CM0025

DN15-DN50

Part List

NO.	Name	Material	NO.	Name	Material
1	Body	Brass	9	Adjust Shaft	Stainless Steel
2	Sealing	EPDM	10/11	O Ring	EPDM
3	Disc	Brass	12	Circlip	Stainless Steel
4/8	O Ring	EPDM	13	Screw	Brass
5	Bonnet	Brass	14	Cap	Brass
6	Bushing	Brass	15	Handwheel	PA66
7	Stem	Brass			





Technical Specification

DN	DN15	DN20	DN25	DN32	DN40	DN50
Size	1/2	3/4	1	1 1/4	1 1/2	2
L	80	85	100	110	120	150
H	115	115	120	140	140	150
Position	7.0	7.5	7.5	9.5	9.5	9.5
Kvs	3.5	4.6	8.6	16.7	20	31
Weight	0.6	0.7	0.9	1.3	1.7	2.6

Kv Value

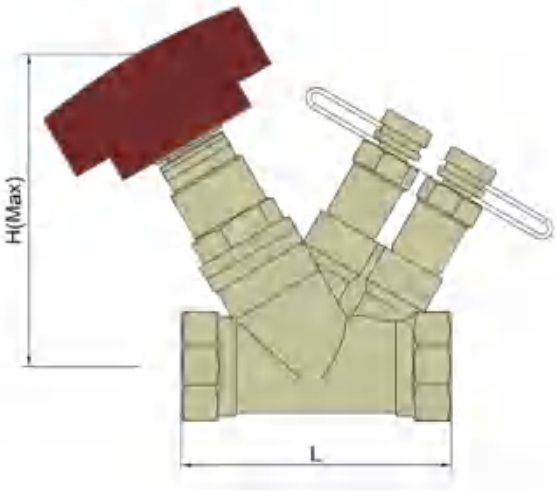
Turn	DN15	DN20	DN25	DN32	DN40	DN50
1	0.4	0.7	1.4	3.1	2.5	5.9
2	0.7	1.0	3.0	4.3	4.6	9.5
3	1.2	1.6	4.7	6.2	6.8	13.0
4	2.0	2.3	5.6	8.6	9.0	16.3
5	2.5	3.4	6.7	11.2	11.8	19.4
6	3.2	4.0	7.5	13.3	14.9	23.2
7	3.5	4.5	8.2	14.8	17.3	24.9
8				15.8	19.3	27.1
9				16.6	19.8	29.0

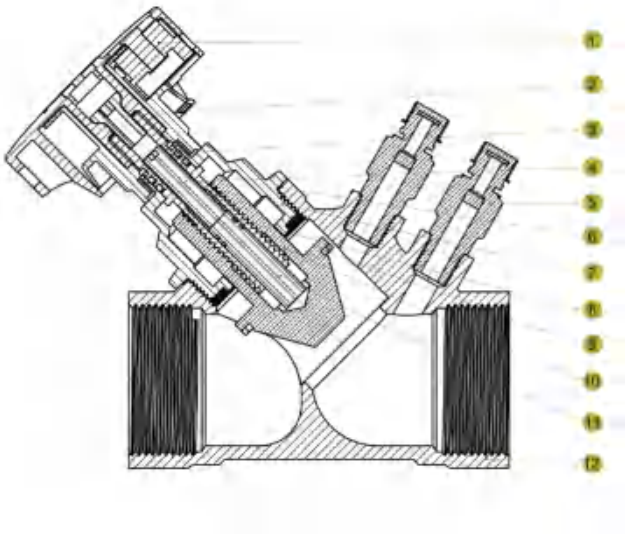
CM0028

DN15-DN50

Part List

NO.	Name	Material	NO.	Name	Material
1	Handwheel	Nylon	7	Bonnet	Brass Hpb59-1
2	Lock Screw	SS304	8	O-ring	EPDM
3	O-ring	EPDM	9	Seal Ring	PTFE
4	Screw	SS304	10	Disc	Brass Hpb59-1
5	Test Plug	Brass Hpb59-1	11	Pin	Brass Hpb59-1
6	Bonnet Gasket	PTFE	12	Body	Brass Hpb59-1





Technical Specification

DN	DN15	DN20	DN25	DN32	DN40	DN50
Size	1/2	3/4	1	1 1/4	1 1/2	2
L	80	85	100	110	120	150
H	92	99	107	115	120	130
Position	5	5	6	6	7	7
Kvs	3.9	8.0	13.4	20.4	31.8	49.6
Weight	0.5	0.5	0.7	1.1	1.4	2.2

Kv Value

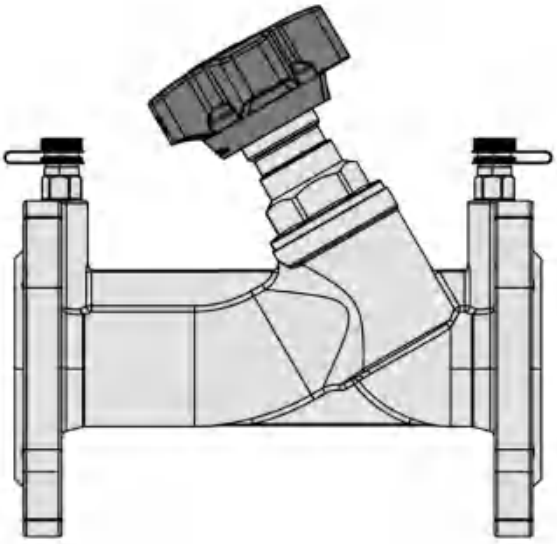
Turn	DN15	DN20	DN25	DN32	DN40	DN50
1	0.9	2.4	3.9	6.1	6.8	7.4
2	1.9	4.2	6.1	10.5	12.1	13.2
3	3.0	5.8	8.2	14.0	16.8	20.2
4	3.6	6.9	10.0	16.7	20.7	27.4
5	3.9	8.0	11.5	18.6	23.5	35.0
6			13.4	20.4	26.5	42.0
7					31.8	49.6

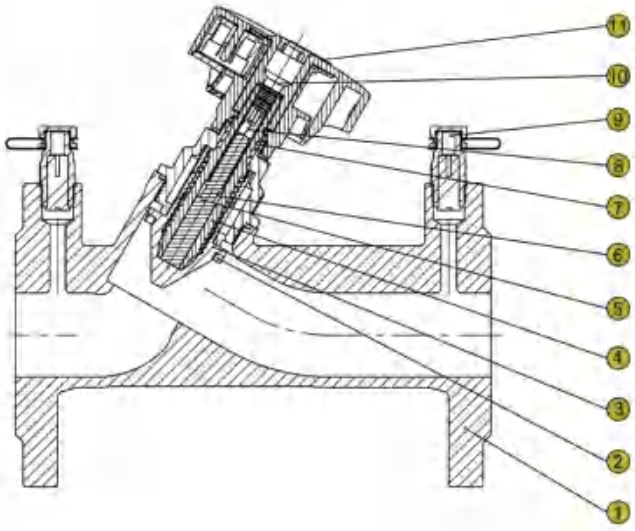
CM0030

DN15-DN40

Part List

NO.	Name	Material	NO.	Name	Material
1	Body	DI	6/7	O-Ring	EPDM
2	Disc Ring	PTFE	8	Screw	Stainless Steel
3	Disc	Brass	9	Bolt	Stainless Steel
4	Stem	Brass	10	Handle	Plastics
5	Pin	Stainless Steel	11	Pressure Nozzle	Brass





Technical Specification

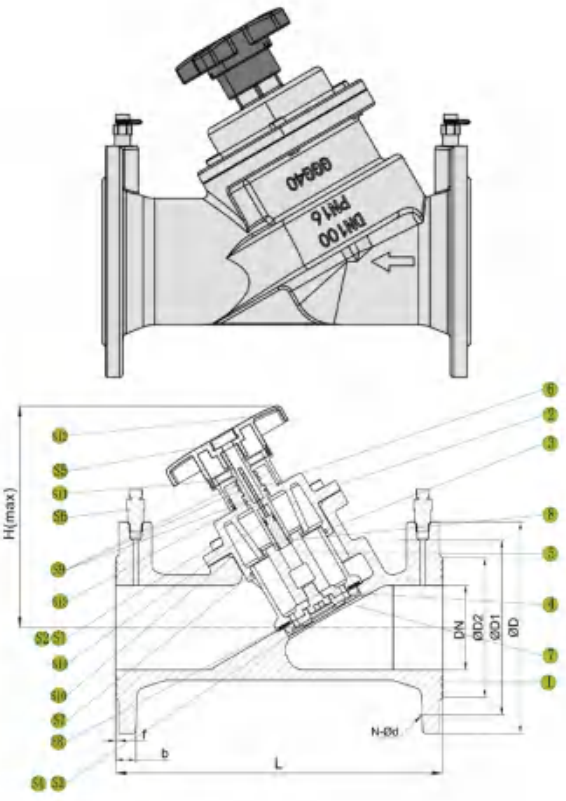
DN	Inch	L	Kvs	Kg	PN16		
					ϕD	ϕK	n-ϕd
DN15	1/2	130	4.3	1.4	95	65	4-14
DN20	3/4	150	8.8	1.7	105	75	4-14
DN25	1	160	16.8	2.3	115	85	4-14
DN32	1 1/4	180	28.6	3.2	140	100	4-19
DN40	1 1/2	200	39.9	4.4	150	110	4-19

Kv Value

Turn	DN15	DN20	DN25	DN32	DN40
1	1.8	3.0	4.8	6.1	8.1
2	3.1	5.4	7.9	10.6	14.4
3	3.8	7.2	10.8	16.0	20.6
4	4.1	8.4	13.7	21.3	27.8
5	4.3	8.8	15.3	25.9	34.6
6			16.8	28.6	39.9

CM0030

DN50-DN500



Part List

NO.	Name	Material	NO.	Name	Material
1	Body	Ductile Iron	S4	Gasket	SS304
2	Bonnet	Ductile Iron	S5	Bolt	Galvanized Steel
3	Sleeve	Ductile Iron	S6	Testing Point	Brass
4	Disc	Ductile Iron	S7	O-Ring (Bonnet)	EPDM
5	Stem Barrel	Brass HPb59-1	S8	Sealing	EPDM
6	Stem	Brass HPb59-1	S9	O-Ring(Stem)	EPDM
7	Connecting Bolt	Brass HPb59-1	S10	O-Ring	EPDM
8	Pin	SS304	S11	Jump Ring	SS304
S1	Inside Hexagonal Bolt	Galvanized Steel	S12	Handwheel	Nylon
S2	Gasket	Galvanized Steel	S13	Screw	SS304
S3	Inside Hexagonal Bolt	SS304	S14	O-Ring(Pin)	EPDM

Technical Specification

DN	Inch	L	Kvs	Kg	PN16		
					ϕD	ϕK	n-ϕd
DN50	2	230	81	9.5	165	125	4-19
DN65	2 1/2	290	93	13	185	145	4-19
DN80	3	310	103	17.2	200	160	8-19
DN100	4	350	194	25.1	220	180	8-19
DN125	5	400	229	34	250	210	8-19
DN150	6	480	402	48	285	240	8-23
DN200	8	600	702	93	340	295	12-23
DN250	10	730	1124	135	405	355	12-28
DN300	12	850	1296	185	460	410	12-28
DN350	14	980	2250	305	520	470	16-28
DN400	16	1100	3050	416	580	525	16-31
DN450	18	1200	3720	557	640	585	20-31
DN500	20	1250	4180	600	715	650	20-34

Kv Value

Turn	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500
1	6	7	7	12	17	17	41	56	56	170	238	275	352
2	16	18	13	20	28	39	97	138	134	261	393	465	611
3	30	34	17	35	51	78	157	236	233	405	587	685	928
4	40	48	31	49	82	115	254	291	302	597	808	900	1289
5	48	59	53	78	118	154	398	451	372	795	1100	1284	1634
6	59	69	71	113	141	209	523	575	570	1030	1440	1634	1983
7	65	80	83	138	162	251	587	658	764	1246	1678	1947	2413
8	76	87	90	166	180	322	645	764	852	1527	1946	2364	2804
9	81	93	103	194	229	402	702	902	947	1707	2238	2694	3212
10								998	1055	1884	2522	2970	3528
11								1042	1195	2048	2689	3270	3774
12								1124	1275	2162	2894	3535	3992
13									1296	2250	3050	3720	4180

Pressure Difference And Flow Rate Relationship

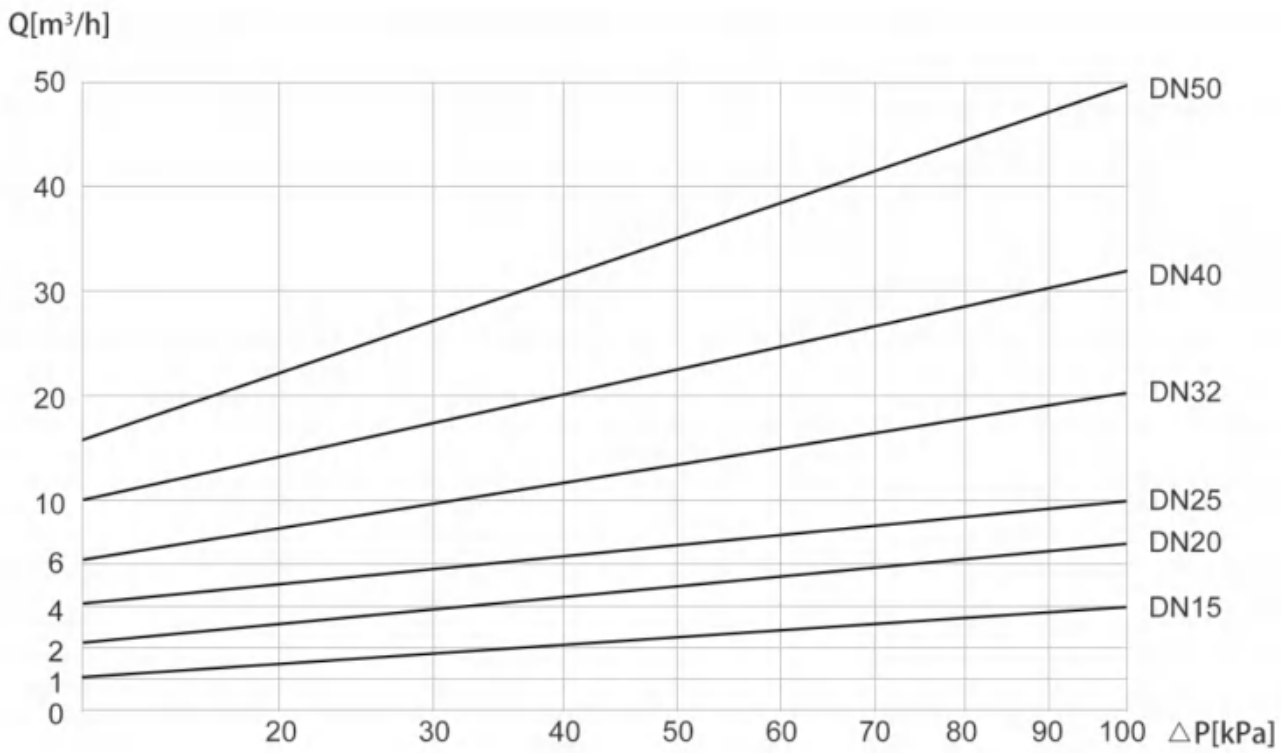
△P: Pressure difference when the valve is fully open (unit: KPa)

V: Rated flow rate at a pressure difference of Δ P (unit: m^3/h)

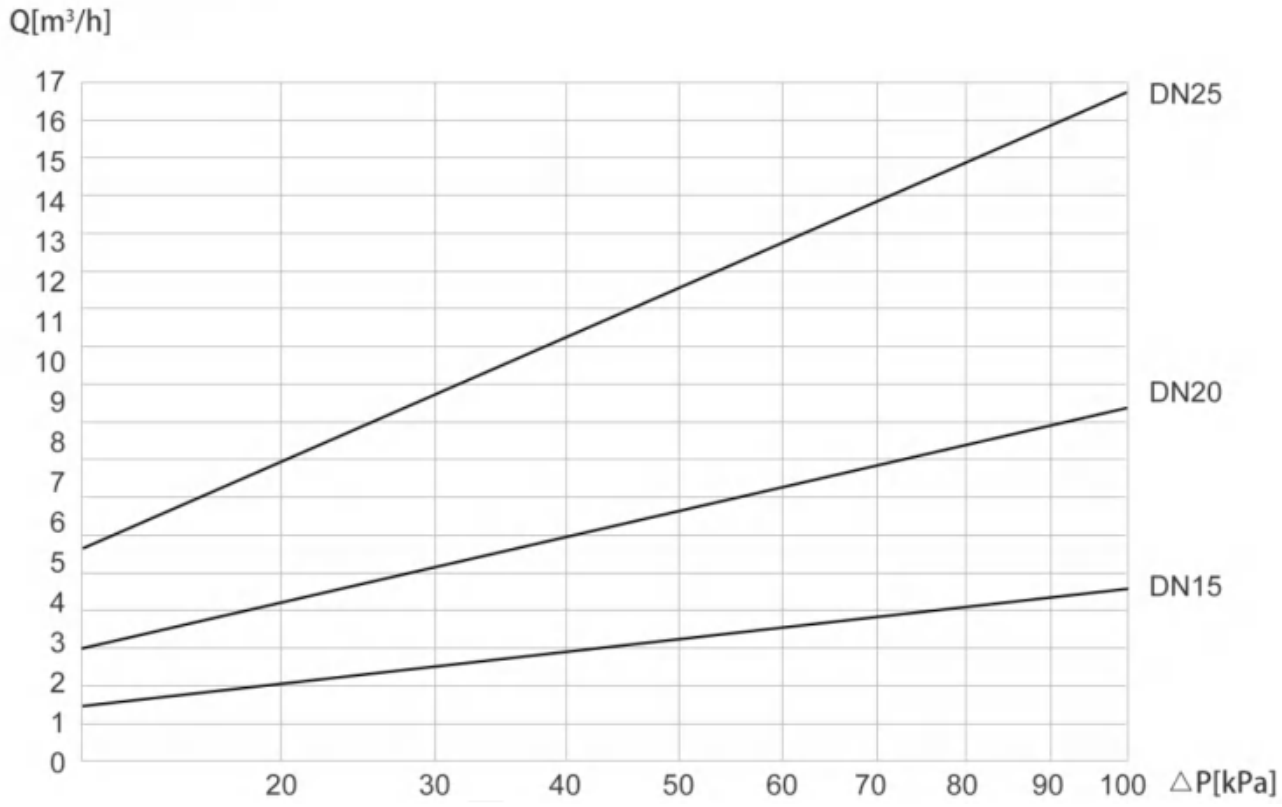
Kvs: The media flow rate passing through the control valve when the control valve is fully open, the pressure difference at both ends of the valve is 100KPa, and the medium density is $1g/cm^3$.

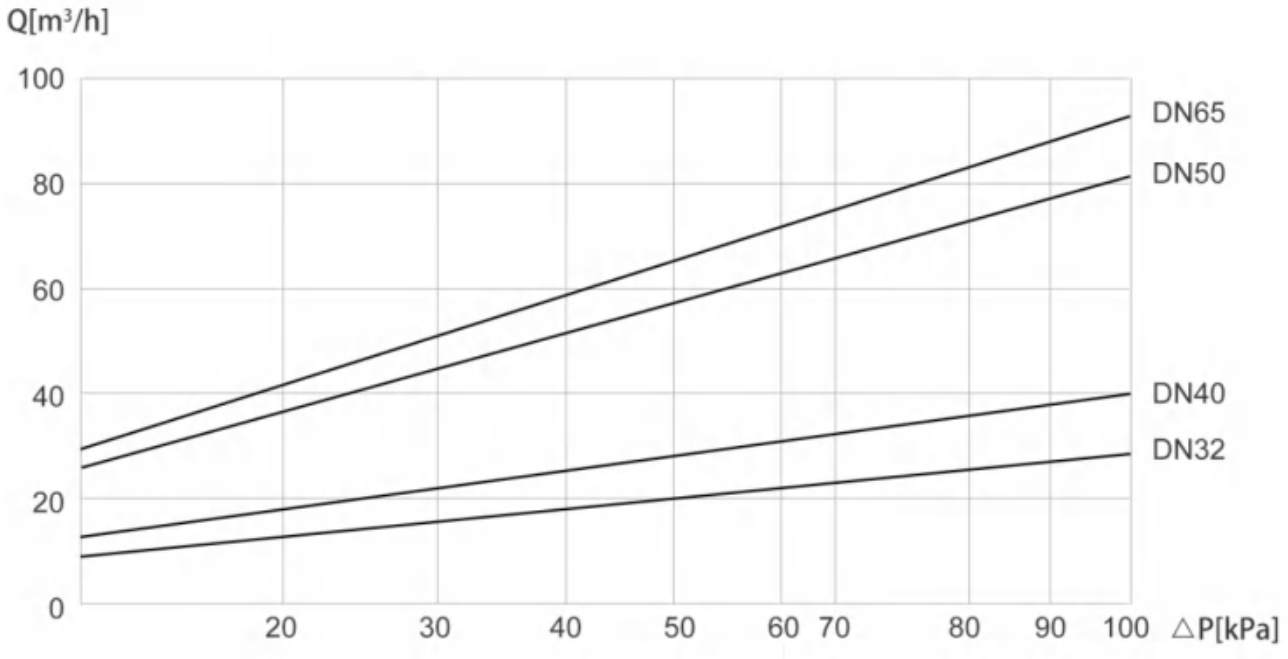
Differential Pressure Flow Diagram

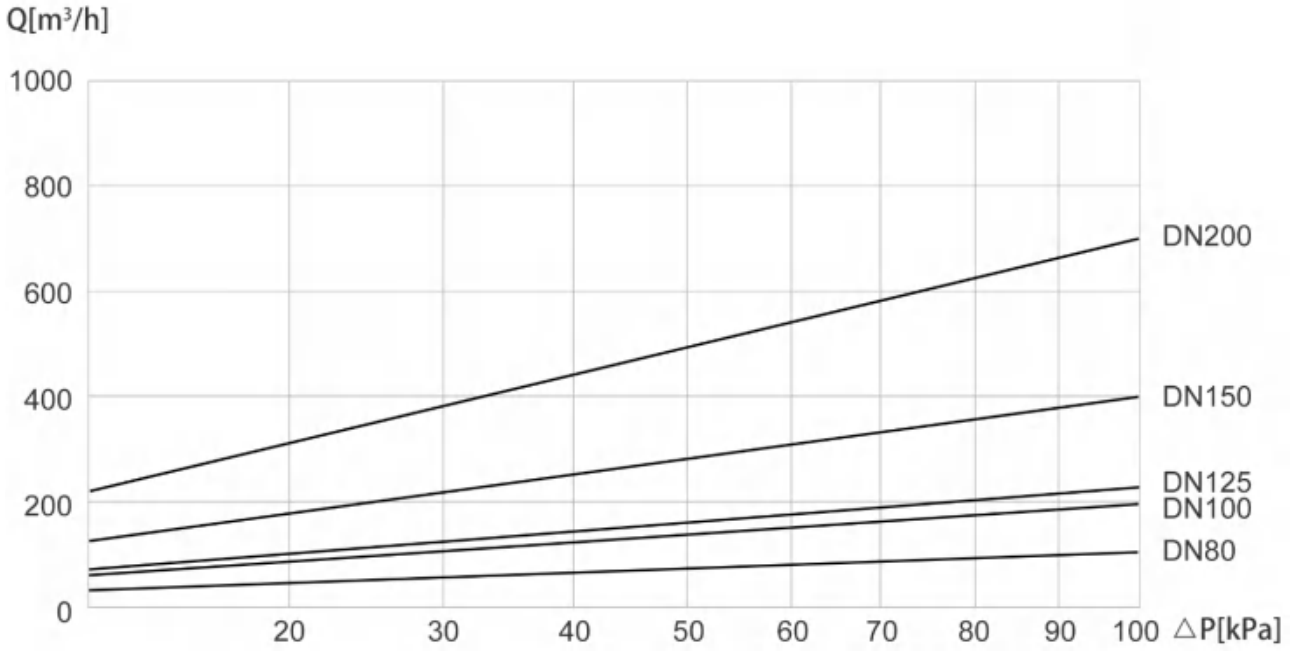
Thread type static balancing valve

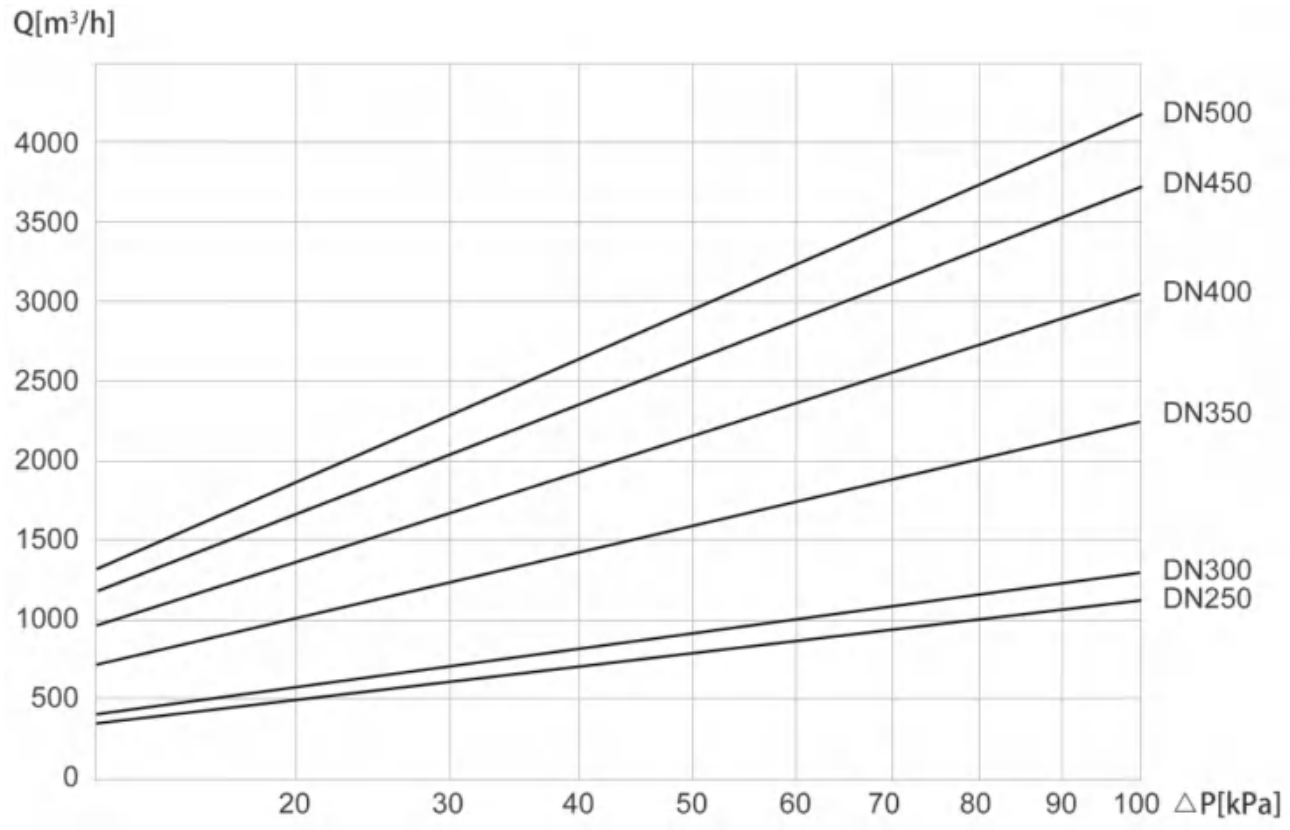


Flanged type static balancing valve

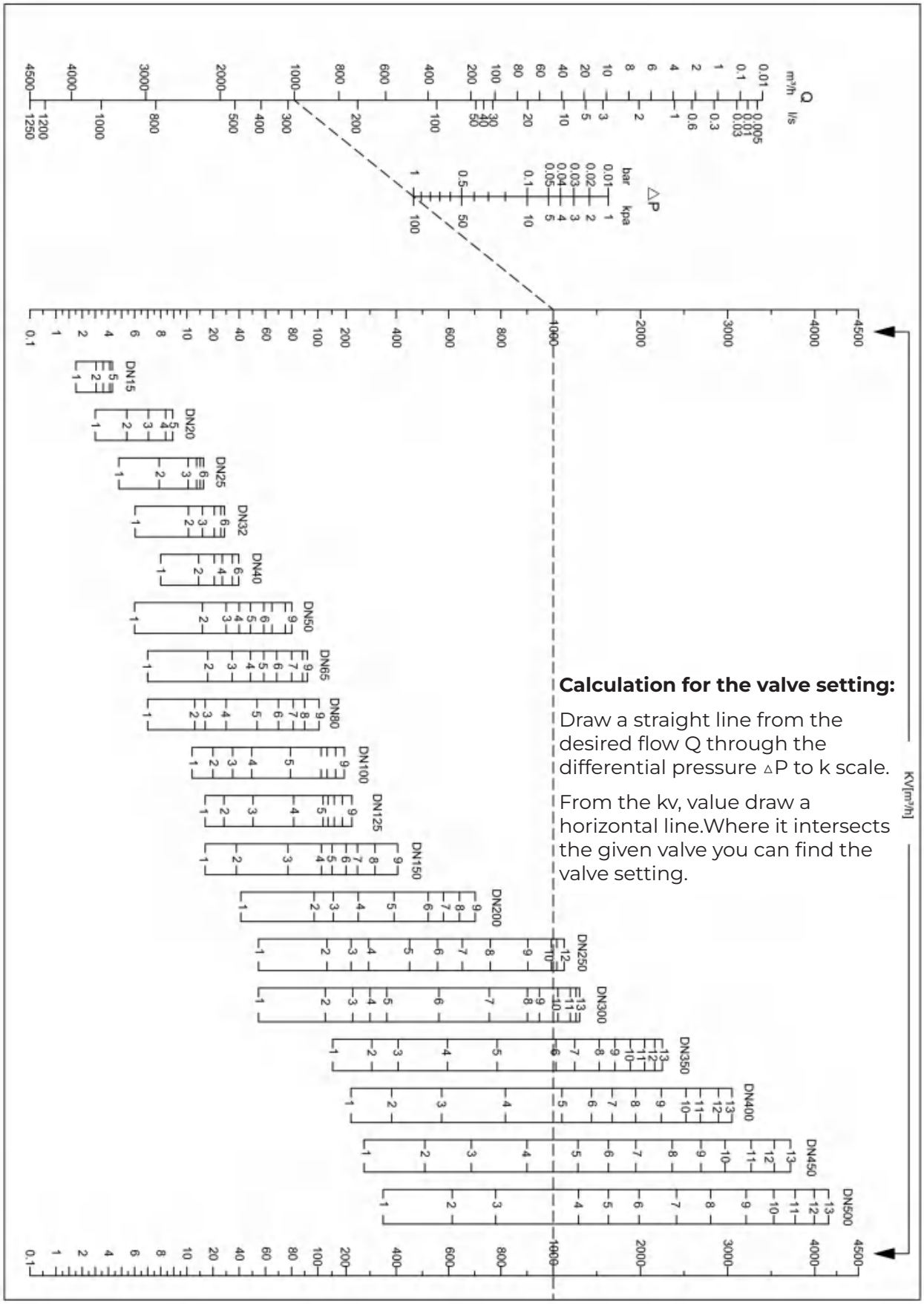





Q[m³/h]
1000
800
600
400
200
0
20
30
40
50
60
70
80
90
100
△P[kPa]
DN200
DN150
DN125
DN100
DN80


Q[m³/h]
4000
3500
3000
2500
2000
1500
1000
500
0
20
30
40
50
60
70
80
90
100
△P[kPa]
DN500
DN450
DN400
DN350
DN300
DN250

KV Value Tree Diagram- Flanged Type



Calculation for the valve setting:

Draw a straight line from the desired flow Q through the differential pressure ▵P to k scale.

From the kv, value draw a horizontal line.Where it intersects the given valve you can find the valve setting.

Installation instructions and cautions

The balancing valve needs to be installed in a position that is convenient for manual adjustment, detection of pressure difference/flow rate, and drainage; It can be installed horizontally or vertically. In order to make the balancing flow more accurate, a straight pipe should be installed at both the upstream and downstream ends of the balancing valve, with its length dimensions shown in the diagram. The balancing valve needs to be installed in the direction of water flow indicated by the arrow on the valve body.

- Before installation, remove the flange cover and ensure that there are no foreign objects in the system
- Please note that the media flow direction is consistent with the flow direction marked on the valve body
- The valve body can be installed in any direction, the balancing valve can be installed on the water supply pipeline or the return pipeline, only one installation is required in each loop. It is recommended to install the balancing valve on the return water pipeline with lower water temperature;
- The balancing valve on the main pipe should be installed in the outlet direction of the water pump; The opening indicator number on the handle should be facing to the debugging personnel to read for convenient debugging; There should be no obstacles in front of the body testing points to avoid being unable to connect the debugging instrument.
- There should be sealing between the flanges; Before filling the valve with water, a measuring joint should be installed
- Once the valve opening is determined, do not change it arbitrarily; The balancing valve has a shut-off function, do not need to install a shut-off valve;
- To prevent damaging testing points, the testing points should be connected after the valve is installed. The installation should follow the principle of red as the supply end and blue as the return water end.
- To ensure the correct operation of the valve, it is usually necessary to maintain a certain straight pipe installation distance when CM0025/28 is connected to an elbow or water pump; When connecting to an elbow, follows the principle of 5D in front of the valve and 2D behind the valve; When connecting to the water pump, follows the principle of 10D. As shown in Figure 1
- Reserve debugging space when installing valve , as shown in Figure 2 and Figure 3

  DN15-DN50:H1>200mm,H2>170mm

  DN50-DN150:H1>200mm,H2>230mm

  DN200-DN500:H1>200mm,H2>400mm

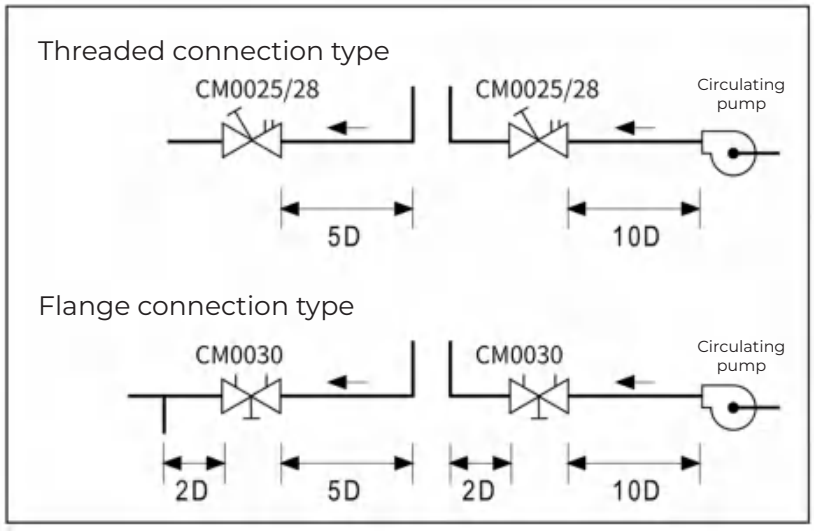


Figure 1

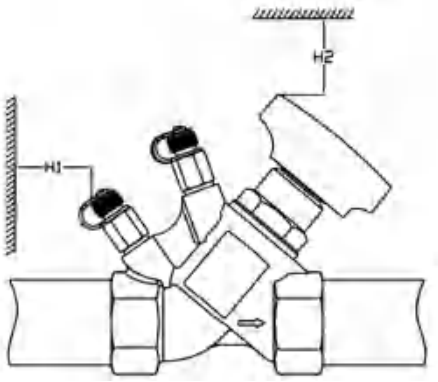


Figure 2

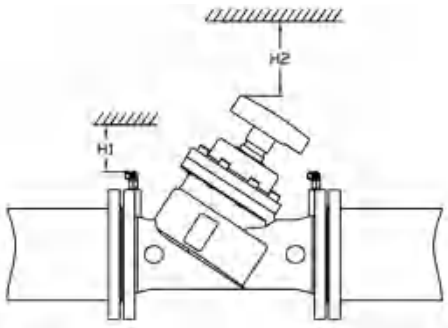
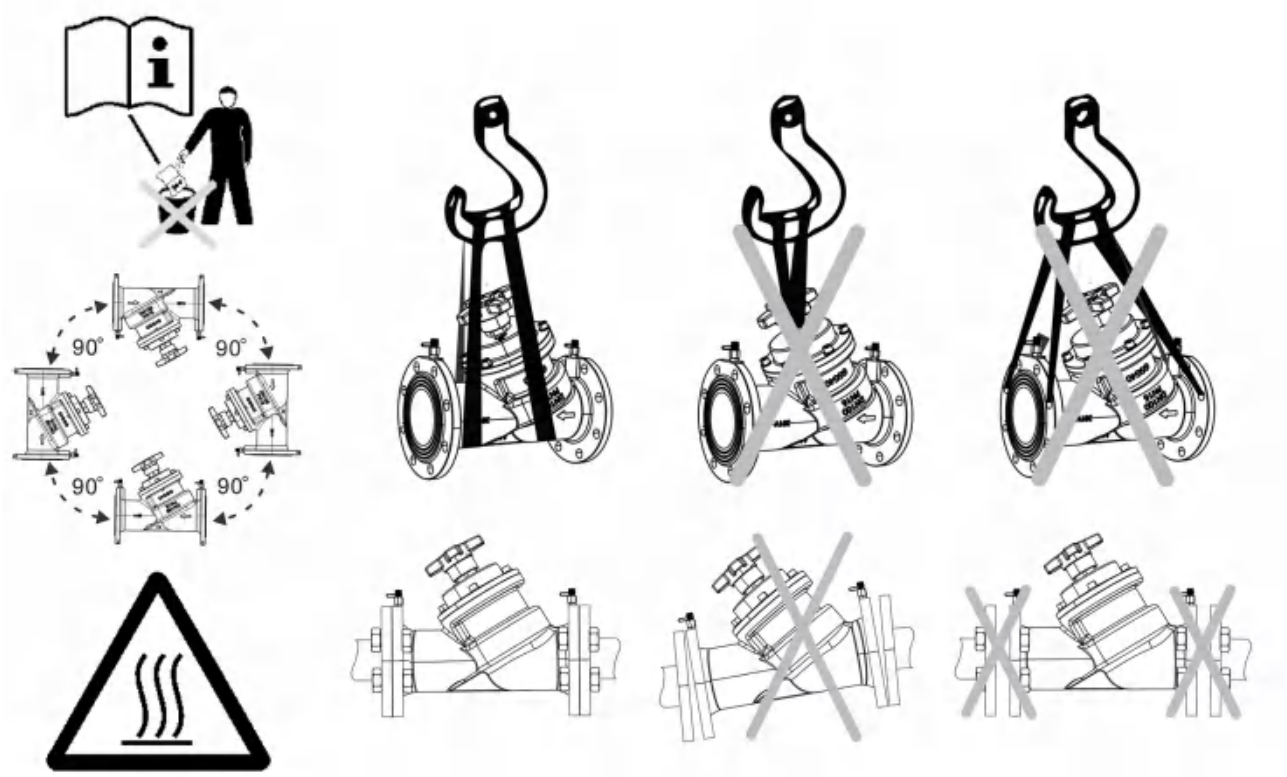


Figure 3

Installation Direction



Product Operation

Figure 1

Figure 2

Figure 3

Type A Handwheel Setting Method

The method of setting the balancing valve based on the preset pressure difference (such as a preset value of 4.5 turns opening).

Operation method：

1. Totally close the valve (shown in Figure 1)

2.Open the valve to a preset value of 4.5 turns(shown in Figure 2)

3.Use an allen wrench to tighten the internal valve stem clockwise

4.Valve setting complete

How to check the preset value: Close the valve and the reading is 0.0 turn. Rotate the handwheel until it stops; At this point, the present reading is the preset value (4.5 turns in this example, as shown in Figure 2).

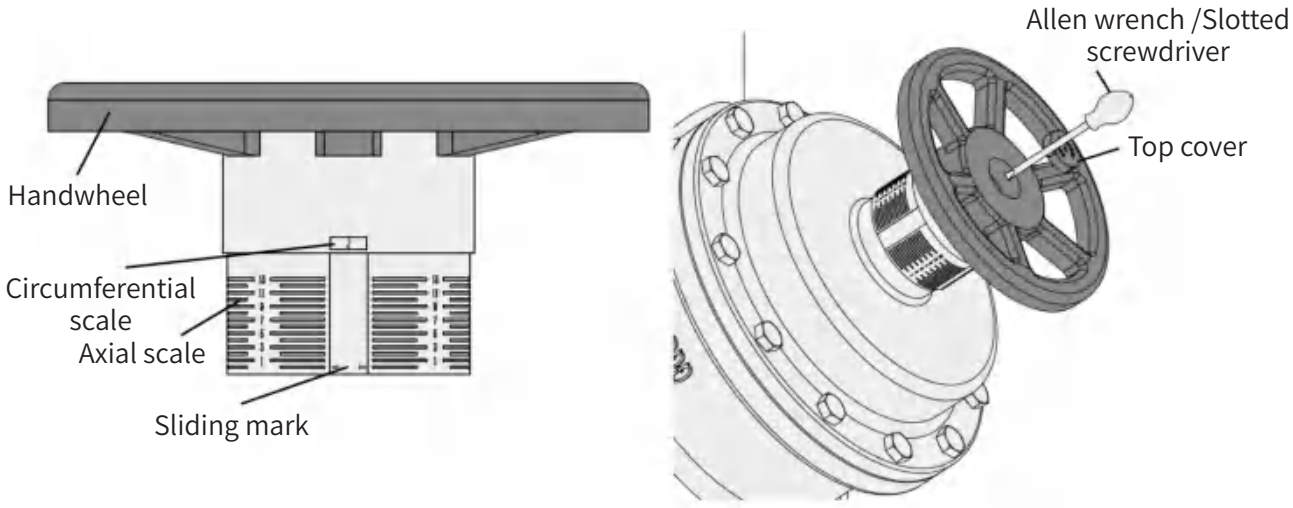
Type B Handwheel Setting Method

1. The preset value is achieved by adjusting the handwheel.A)Corresponding to the sliding mark, rotate the axial scale to display the main axial value.Rotate the handwheel one turn, the axial scale changes by one unit value.B)Corresponding to the mark,rotate the circumferential scale on the handwheel to display the fine adjustment value. Rotate every 1/10 turn of the handwheel, the dial will be changed by one unit value

2 . Remove the handwheel top cover with a tool

3.Using a long handle allen wrench or a long handle slotted screwdriver, turn the built-in adjusting shaft clockwise until it stops to lock the preset value and maximum opening.

4. After locking, restore the removed top cover



Product Usage

- Building air conditioning or heating network

In order to meet energy-saving requirements, it is necessary to ensure that all main pipes and branches in the building's air conditioning and heating network system meet the design flow rate。 Therefore,balancing valves should be installed on the main, riser, and branch pipes.

- Residential heating network

The heating network in residential areas often provides heat to several buildings from boiler rooms or heating stations.Due to the different distances from each building to the heat source, without effective equipment to eliminate the residual pressure head in the near loop, the flow distribution will not meet the design requirements, resulting in overheating at the near end and supercooling at the far end. Balancing valves should be installed on each main and branch pipe to ensure flow balance between each main pipe and each building.

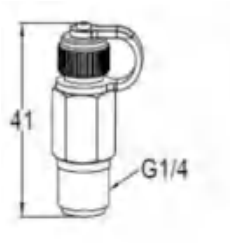
- Heat exchange unit or water chilling unit

When installing heat exchange units or water chilling units in parallelly, if the flow rate of each unit is not consistent with its rated flow rate, it will prevent the unit from operating efficiently. In this case, a balancing valve should be installed at each heat exchange unit or water chilling unit to ensure that each unit can reach the design flow rate and operate normally and safely.

- Thermodynamic Station

In the system where the thermal power station or boiler room supplies hot water or steam to several thermodynamic stations, in order to enable each thermodynamic station to obtain the required flow, balancing valves shall be installed at the primary loop side of each thermodynamic station.To ensure the flow rate of each secondary loop as the designed flow rate, balancing valves should also be installed on each secondary loop side of the thermodynamic station.

Accessories

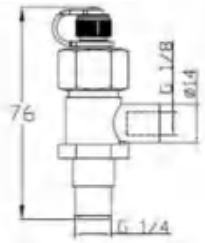


Testing point

Red inlet

Blue outlet

Specifications	Model
Red	CM0101
Blue	CM0102

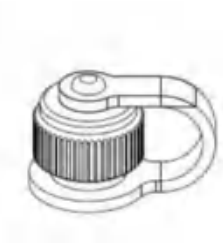


Testing point with shut-off function

Equipped with two-way

testing points and shut-off function

Model
CM0103



Testing point cap

Specifications	Model
Red	CM0201
Blue	CM0202

Handwheel

Complete set

Specifications	Model
DN15-DN50	CM0301
DN65-DN150	CM0302
DN200-DN500	CM0303

Allen wrench

Opening locking

Specifications	Model
3mm	CM0403
5mm	CM0405
8mm	CM0408

EXPERT IN FLUID CONTROL

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